

Art Unit: ***

CLMPTO

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Cancel claim 1.

2. A method as recited in claim 1, wherein said sending step occurs while the called subscriber line is in an on-hook state, whereby a party at the called station may identify the calling party before answering the call.

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Art Unit: ***

3. A method as recited in claim 1, wherein said sending step occurs if the called subscriber line is in an off-hook state whereby a party at the called station may identify the calling party while another call is in progress.

4. A method as recited in claim 1, further comprising the step of storing said extracted information in said switching system if said call is terminated without being answered at said called station.

5. A method as recited in claim 4, further comprising the step of automatically placing by said switching system, after termination of said call, a second call from said called subscriber line to said calling subscriber line in response to entry of a predefined code at said called station.

6. A method as recited in claim 4, further comprising the step of automatically sending said stored information from said switching system to said called subscriber line in response to entry of a predefined code at said called station after said call has been terminated, whereby a party at the called station may identify the calling party.

7. A method as recited in claim 1, wherein said data network is Internet, and said transporting step comprises TCP/IP protocol conversion.

8. A method as recited in claim 7, wherein said transporting step further comprises:

accessing a data base from a first gateway router that interfaces between said first PSTN and the Internet;

identifying from said data base a second gateway router that interfaces between said second PSTN and the Internet, whereby said call is to traverse the Internet between said first and second gateway routers; and

sending a TCP/IP protocol message to said second gateway router.

9. A method as recited in claim 8, wherein said transporting step comprises converting the TCP/IP protocol message to a common channel signaling protocol message by said second gateway router for receipt by said switching system.

10. A method as recited in claim 9, wherein the common channel signaling protocol message received by said switching system includes information identifying the calling subscriber line and information identifying said second gateway router and said extracting step

Art Unit: ***

comprises distinguishing caller subscriber line identification from gateway router identification.

11. A communications system comprising:

a first public switched telephone network (PSTN) including a plurality of subscriber lines and central office switching systems, each subscriber line connected to a respective central office switching system and having an assigned directory number, a voice network portion comprising voice communication paths for connection to the subscriber lines, and a common channel signaling network portion comprising signaling paths interconnecting said central office switching systems through at least one signal transfer point;

a second PSTN, remote from the first PSTN, and including a plurality of subscriber lines and central office switching systems, each subscriber line connected to a respective central office switching system and having an assigned directory number, a voice network portion comprising voice communication paths for connection to the subscriber lines, and a common channel signaling network portion comprising signaling paths interconnecting said central office switching systems through at least one signal transfer point;

a wide area internetwork connecting spaced dissimilar networks and using transmission control

Art Unit: ***

protocols/internet program (TCP/IP) to link said dissimilar networks; and

first and second interfaces linking said first PSTN and said second PSTN respectively to said wide area internetwork to establish a transport path for a voice call from a calling subscriber line of said first PSTN to a called subscriber line at said second PSTN, each of said interfaces comprising a controller controlling the set-up of connections between said calling subscriber line and said called subscriber line via said common channel signaling networks in the respective PSTNs;

wherein said controller in the interface linking the first PSTN provides calling subscriber line identification information to the common channel signaling network of said first PSTN during set-up of the call.

12. A method for providing caller identification information for a voice call dialed from a subscriber line that traverses a plurality of diverse transport paths including at least a first public switched telephone network (PSTN) to which a called subscriber line is connected, a data internetwork, and a second PSTN to which the calling subscriber line is connected, said method comprising the steps of:

establishing a route for said call through said second PSTN to a first gateway connected to said data

Art Unit: ***

internetwork, said establishing step comprising conveying calling subscriber line information and dialed digit information to said first gateway;

routing said call through said data internetwork from said first gateway to a second gateway that interfaces with said first PSTN;

transporting the conveyed information to said second gateway;

initiating a call connection by said second gateway to said calling subscriber line via said first PSTN for completion of routing of said call; and

supplying identification of said calling subscriber line to said called subscriber line upon completion of the routing.

13. A method as recited in claim 12, wherein said supplying step occurs while the called subscriber line is in an on-hook state, whereby a party at the called station may identify the calling party before answering the call.

14. A method as recited in claim 12, wherein said supplying step occurs while the called subscriber line is in an off-hook state whereby a party at the called station may identify the calling party while another call is in progress.

Art Unit: ***

15. Apparatus for use in a telecommunications system having a plurality of diverse paths for transporting a voice call, said paths traversing at least a first public switched telephone network (PSTN) to which a called subscriber line is connected, a data internetwork, and a second PSTN to which a calling subscriber line is connected, said apparatus comprising:

a server connectable to said data internetwork for interfacing with said first PSTN, said server comprising a connection to said first PSTN and means for providing information to said first PSTN that identifies said calling subscriber line;

whereby calling party identification is conveyed to the called subscriber line by said first PSTN upon routing of said voice call.

16. Apparatus as recited in claim 15, wherein said first PSTN comprises a switching system to which said connection is coupled, said connection being recognizable by said switching system to enable extraction of calling subscriber line identification information from said means by said switching system.

17. Apparatus as recited in claim 16, wherein said connection is an ISDN connection.

Art Unit: ***

18. Apparatus as recited in claim 16, wherein said connection is a Feature Group connection.

19. A method for providing caller identification information for a voice call, originating from a remote calling telephone subscriber line, to a called telephone subscriber line comprising the steps of:

routing an initial voice call, originated by a calling party at said remote calling telephone subscriber line location and dialed to said called telephone number, through a data internetwork to a gateway router interface;

in response to said routing step, placing a subsequent call from said gateway interface through a public switched telephone network (PSTN) to said called subscriber line;

linking said initial voice call at said gateway with said subsequent call, and

transporting the originating calling telephone subscriber line identification information from said gateway through said PSTN to said called subscriber line while said called subscriber line is in an on-hook condition.

Art Unit: ***

--20. (New) A gateway for use in a telecommunications system having a plurality of diverse paths available for transporting a voice call, one of said paths traversing at least a public switched telephone network (PSTN) having a local line to a subscriber receiving the voice call and a packet-switched data communication network, the gateway being connectable between the packet-switched data communication network and the PSTN, the gateway comprising:

(a) a data network server connectable to the packet-switched data communication network, for receiving through the packet-switched data communication network a request from a calling party to set up a voice call through the PSTN to the local line to the subscriber, and for receiving identification information associated with the calling party through the packet-switched data communication network; and

(b) a telephony platform having a call connection to the PSTN for initiating the voice call through the PSTN to the local line to the subscriber in response to the request from the calling party and having a signaling link for providing call-related signaling information to the PSTN including the identification information associated with the calling party, to enable transport of the calling party identification information through the PSTN to the local line to the subscriber.

21. (New) The gateway of claim 20, wherein the data network server comprises a router for connection to a public data network.

22. (New) The gateway of claim 21, wherein the router is adapted for connection to the Internet.

23. (New) The gateway of claim 20, wherein the call connection and the signaling link comprise channels of an ISDN link between the telephony platform and the PSTN.

Art Unit: ***

24. (New) The gateway of claim 20, wherein the call connection and the signaling link utilize a Feature Group D trunk between the telephony platform and the PSTN.

25. (New) The gateway of claim 20, wherein:
the call connection comprises a voice channel between the telephony platform and the PSTN; and
the signaling link comprises a Simplified Message Desk Interface (SMDI) link to an office of the PSTN.

26. (New) Apparatus for use in a telecommunications system having a plurality of diverse paths available for transporting a voice call, one of said paths traversing at least a public switched telephone network (PSTN) having a local line to a subscriber receiving the voice call and a packet-switched data communication network, said apparatus comprising:

a server comprising an interface for connection to the packet-switched data communication network, an interface for voice-call connection with the PSTN, and means for providing calling party identification information for a calling party to the PSTN based on calling party identification information received via the packet-switched data communication network;

whereby the calling party identification information is received via a path through the packet-switched data communication network and is conveyed to the called subscriber line by the PSTN upon routing of the voice call.

27. (New) The Apparatus as in claim 26, wherein the interface for connection to the packet-switched data communication network comprises a router for connection to an Internet Protocol (IP) network.

Art Unit: ***

28. (New) The Apparatus as in claim 26, wherein the interface for connection to the packet-switched data communication network comprises a router for connection to the Internet.

29. (New) The Apparatus as in claim 26, wherein:
the interface for voice-call connection with the PSTN comprises a telephone switch for selective communication via a plurality of lines of the PSTN; and
the means for providing calling party identification information for the calling party in the PSTN comprises an interface to a signaling channel of the PSTN.

30. (New) A method for providing caller identification information for a voice call, originating from a remote calling subscriber device, to a called telephone subscriber line comprising the steps of:

routing an initial voice call, originated by a calling party at the remote calling subscriber device, through a packet switched data network to a gateway that interfaces between the packet switched data network and a public switched telephone network (PSTN);

in response to said routing step, placing a subsequent telephone call from the gateway through the PSTN to the called subscriber line;

linking the initial voice call at the gateway with the subsequent telephone call; and
transporting originating calling party identification information from the gateway through the PSTN to the called subscriber line while the called subscriber line is in an on-hook condition.

31. (New) The method of claim 30, wherein the step of routing the initial voice call comprises:

routing a telephone call from the remote calling subscriber device through a remote public switched telephone network (PSTN) to a remote gateway coupled between the packet switched data network and the remote PSTN; and

Art Unit: ***

establishing communications relating to the initial voice call between the two gateways via the packet switched data network.

32. (New) The method of claim 31, wherein:

the step of establishing communications comprises communicating from the remote gateway an identification of a line of the remote PSTN for the remote calling subscriber device; and

the step of transporting originating calling party identification information is responsive to the identification of the line of the remote PSTN.

33. (New) A method for providing caller identification information for a voice call, originating from a remote calling subscriber device, to a called telephone subscriber line comprising the steps of:

receiving a voice call intended for the called telephone subscriber line, originated by a calling party at the remote calling subscriber device through a packet switched data network, handed-off from a gateway that interfaces between the packet switched data network and a public switched telephone network (PSTN);

initiating routing of a telephone call through the PSTN to the called telephone subscriber line for use in completing the voice call to the called telephone subscriber line;

receiving a signaling message containing originating caller identification information from the gateway; and

transporting the originating caller identification information through the PSTN to the called telephone subscriber line while routing the telephone call through the PSTN.

Art Unit: ***

34. (New) The method as in claim 33, wherein the step of receiving the signalling message comprises receiving the originating caller identification information over an ISDN channel from the gateway.

35. (New) The method as in claim 33, wherein the step of receiving the signalling message comprises receiving the originating caller identification information over a Feature Group D trunk from the gateway.

36. (New) The method as in claim 33, wherein the step of receiving the signalling message comprises receiving the originating caller identification information over a Simplified Message Desk Interface (SMDI) link from the gateway.

37. (New) The method as in claim 33, wherein the step of transporting comprises:
transmitting the originating caller identification information to a terminating office of the PSTN in an out-of-band interoffice signalling message; and
in response to the out-of-band interoffice signalling message, transmitting the originating caller identification information from the terminating office over the called telephone subscriber line.

38. (New) The method as in claim 37, wherein the out-of-band interoffice signalling message comprises a message formatted in accord with a part of the Signaling System 7 (SS7) protocol.

39. (New) A public switched telephone network (PSTN) serving a destination subscriber station, comprising:

Art Unit: ***

a first telephone switching office having at least one link for voice telephone calls and associated signaling to a gateway coupled between the PSTN and a packet switched data network;

a second telephone switching office serving a telephone link to the destination subscriber station; and

an interconnection between the first and second telephone switching offices, wherein:

the first telephone switching office is adapted to recognize a voice call arriving from the gateway, obtain originating caller identification information from the gateway, and signal the originating caller identification information to the second telephone switching office, and

the second telephone switching office is adapted to attempt to complete a telephone call over the telephone link to the destination subscriber station for the recognized voice call from the gateway, and to transmit the originating caller identification information over said telephone link.

40. (New) The public switched telephone network (PSTN) as in claim 39, wherein the interconnection between the first and second telephone switching offices includes an out-of-band signaling network coupled between the first and second telephone switching offices, for transporting the signaling therebetween.

41. (New) The public switched telephone network (PSTN) as in claim 39, wherein the second telephone switching office serves a telephone line connected to the destination subscriber station.

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